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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/544,134	04/18/2006	Andreas Grundl	WUE-39	7736
26875 7590 05/07/2008 WOOD, HERRON & EVANS, LLP 2700 CAREW TOWER 441 VINE STREET CINCINNATI, OH 45202				
EXAMINER TIEFEN, MARINA ANNETTE				
ART UNIT		PAPER NUMBER		
4177				
MAIL DATE		DELIVERY MODE		
05/07/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/544,134

Applicant(s)

GRUNDL ET AL.

Examiner

MARINA TIETJEN

Art Unit

4177

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07/29/05 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date 07/29/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graham (US Patent No. 2,818,051) in view of Izuo et al. (US Patent No. 5,537,960).

Regarding Claim 1, Graham discloses a valve arrangement for the controlled opening and closing of a working chamber 7 (Fig. 1) of an internal-combustion engine, the valve stem 5 (Fig. 1) of the valve arrangement to execute longitudinal movements between an open position and a closed position of the valve arrangement, characterized by at least one actuating element 229 (Fig. 6) and an engagement element 119 (Fig. 6) interacting with said actuating element, one of these elements being arranged in torsion-resistant manner on the valve stem and the other of these elements being arranged statically in relation to the mobile valve stem in such a manner that prior to reaching the open or closed position of the valve stem the engagement element and the actuating element come into engagement with one another and trigger a rotary movement which is superimposed on the longitudinal movement of the valve stem.

However, Graham does not disclose the valve as being electrically actuated by an electrical linear drive unit which, depending on electrical signals, causes a valve

stem of the valve arrangement to execute longitudinal movements between an open and closed position.

Izuo teaches electronically actuating a valve in an internal combustion engine by using an electric linear drive unit (col. 1, lines 9-12) for the purpose of eliminating the need for a cam mechanism for driving a valve. Additionally, an opening and closing timing of the valve body can be arbitrarily changed, and thus an ideal opening and closing timing determined in response to operating conditions of the internal combustion engine can be realized (col. 1, lines 20-26).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include an electrical linear drive unit to electronically actuate the valve open and closed as suggested and taught by Izuo for the purpose of eliminating the need for a cam mechanism for driving a valve, as well as being able to arbitrarily change an opening and closing timing of the valve body to realize the ideal timing determined in response to operating conditions of the internal combustion engine.

Regarding Claim 2, Graham discloses the engagement element 119 (Fig. 6) is connected to the valve stem 5, (Fig. 1) and the actuating element 229 (Fig. 6) is arranged on the housing 3, (Fig. 6) of the working chamber 7 (Fig. 1). (Actuating element 229 sits on pawl end 35 which is on housing 3, Fig. 6)

Regarding Claim 3, Graham discloses the engagement element 119 (Fig. 6) is indirectly arranged on the housing of the working chamber and the actuating element

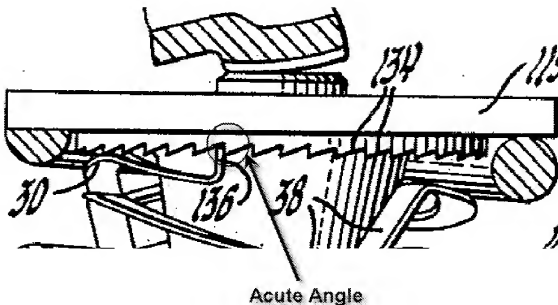
229 (Fig. 6) is indirectly connected to the valve stem 5 (Fig. 1). (Engagement element 119, Fig. 6, abuts coil spring 18, which sits on housing 3, Fig. 1. Actuating element tip 229 abuts engagement element 119 which is locked to valve stem 5, Fig. 6)

Regarding Claim 4, Graham discloses the engagement element 119 (Fig. 6) is an area or plate provided with surface irregularities 34 (Fig. 6).

Regarding Claim 5, Graham discloses the engagement element 119 (Fig. 6) is a disc or a surface segment with substantially radially oriented depressions and/or elevations 34 (Fig. 6) relative to the valve stem.

Regarding Claim 6, Graham discloses the actuating element 229 (Fig. 6) is a spring arrangement, with a substantially tangential directional component 38 (Fig. 6) relative to the valve stem 5 (Fig. 1).

Regarding Claim 7, Graham discloses the actuating element 119 is oriented at an acute angle relative to an active surface of the engagement element as shown for clarification below.



Regarding Claim 8, Graham discloses the rotary movement is imparted to the valve stem in the course of the approach to the open position (col. 4, lines 7-8).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gray (US Patent No. 1,850,544), Johansson (US Patent No. 5,727,507), Engemann (US Patent No. 2,767,696), and Norton (US Patent No. 2,827,029) also disclose elements of a mechanical valve arrangement as claimed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARINA TIETJEN whose telephone number is (571) 270-5422. The examiner can normally be reached on Mon-Thurs, 8:00AM-4:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quang D. Thanh can be reached on (571) 272-4982. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quang D. Thanh/
Supervisory Patent Examiner,
Art Unit 4177

/M. T./
Examiner, Art Unit 4177